

REMARKS

Claims 49-73 were under examination as of the issuance of the Office Action of November 2, 2006. By the current Amendment to Claims, claims 49-52, 54-55, 57-59 and 70-73 have been amended and claims 56, 67 and 68 have been cancelled without prejudice.

Support for the amendments to the claims can be found throughout the specification and in the claims as originally filed. Specifically, support for the amendment to claims 49-51 can be found throughout the specification, for example, at page 33, lines 22-25 and at page 35, lines 1-5, and in the claims as originally filed, for example, claims 67-68.

Applicants respectfully request that the aforementioned amendments be entered. No new matter has been added by the foregoing amendments claims. Applicants note that the foregoing amendments and cancellation of claims have been made solely in order to expedite examination and in no way should be construed as an acquiescence to the validity of the rejections set forth in the Office Action. Following entry of the foregoing amendments, claims 49-55, 57-66 and 69-73 will remain pending in the present application.

Rejection of Claims 49-56, 60-62, 65-66 and 69-71 Under 35 U.S.C. § 102(b) and 102(e)

Claims 49-56, 60-62, 65-66 and 69-71 have been rejected under 35 U.S.C. § 102(b) as being anticipated by WO97/42222 to Ball *et al.* (hereinafter referred to as “Ball”) on the ground that Ball

teaches the species RRLIF (page 63, lines 16-19). This species meets and anticipates the limitations of the instant claims 49-56, 60-62, 65-66, 69-71, additionally, ‘2222 teaches many variants, i.e., page 75 line 20, of the instantly claimed formulas as applied by the variant definitions in the instant specification.

In addition, claims 49-56, 60-62, 65-66 and 69-71 have been rejected under 35 U.S.C. § 102(e) as being anticipated by US Patent No. 6,962,792 to Ball *et al.* (hereinafter referred to as the “‘792 patent”) on the ground that the ‘792 patent

teaches RRLIF (SEQ ID NO:12), which meets the limitations of the instant claims 49-56, 60-62, 65-66, 69-71. Additionally, the ‘792 patent teaches variants of the RRLIF pentapeptide as they are described in the instant specification, wherein the variants of peptide formula V are ‘modified by at least one of a deletion, addition or substitution of one or more amino acid residues’ at page [sic] 32, lines 25-31.

Initially, Applicants note that the '792 patent is a national phase application of International Publication No. WO97/42222 under 35 U.S.C. § 371 and, as such, the teachings of each reference are substantially identical. Accordingly, Applicants will address both rejections together in the following discussion.

Applicants respectfully traverse the foregoing rejections. However, solely in the interest of expediting examination and in no way acquiescing to the validity of the rejections, Applicants have amended independent claims 49-51 to incorporate the limitation of claim 68 which the Examiner has implicitly deemed novel over the cited prior art. Moreover, Applicants submit that each of the particular species recited in independent claim 71, as amended, possess either a pFF or mCIF residue at the fifth residue which is distinct from the RRLIF sequence disclosed in Ball or the '792 patent. Accordingly, because Ball fails to teach or suggest each and every limitation of the claimed invention, Applicants respectfully request reconsideration and withdrawal of the foregoing rejection.

Rejection of Claims 49-56, 60-62, 65-66 and 71-73 Under 35 U.S.C. 103(a)

Claims 49-56, 60-62, 65-66 and 71-73 have been rejected under 35 U.S.C. 103(a) as being obvious over Ball on the grounds that

[a]t page 5, lines 17-21 and at pages 79-80, '2222 teaches the formula $xyLzF$, wherein x is Arginine and y and z are any amino acid. This formula and the limitations on the open residues renders obvious many variants and sequences of the instantly claimed formula V sequence of claims 49-56, 60-62, 65-66, 71-71, *i.e.* SEQ ID NOs: 294, 297, 300, 321, 324, 327, 348, 351, 354 and 377 of claims 71-73.

Applicants respectfully traverse the foregoing rejection. Initially, Applicants submit that Ball fails to teach or suggest each and every limitation of the claimed invention. Specifically, Applicants submit that Ball fails to teach or suggest that X_9 is a natural or unnatural amino acid selected from the group consisting of leucine, cyclohexylalanine (Cha), homophenylalanine (Hof), tyrosine, parafluorophenylalanine (pFPhe), metafluorophenylalanine (mFPhe), tryptophan, 1-naphthylalanine (1Nal), 2-naphthylalanine (2Nal), metachlorophenylalanine (mClPhe), biphenylalanine (Bip) and tetrahydroisoquinoline-3-carboxylic acid (Tic), as required by each of independent claims 49-51 and 71.

Moreover, Applicants submit that, based on the teachings of Ball, one skilled in the art would not be motivated to modify the RRLIF domain taught in Ball to arrive at the claimed

invention. As taught in Ball, the L and F residues of the RRLIF domain are deemed essential for activity. Indeed, as confirmed by alanine scanning of a 20 mer peptide containing the sequence RRLIF, a single point mutation at either the L or F residue completely abolishes inhibitory activity (see page 45, lines 5-17, page 63, lines 6-21 and Figure 6). Such teachings are further reiterated in Ball at page 5, lines 17-23 in which the L and F residues of the xyLzF motif are deemed invariable. In view of the foregoing teachings, Applicants submit that Ball teaches away from the modification of the RRLIF motif taught in the prior art and necessary to arrive at the claimed invention.

Lastly, Applicants submit that the peptides of the present invention possess unexpectedly advantageous properties as compared to the peptides disclosed in Ball. As described in the specification,

...the peptides of the present invention have been shown to display preferential selectivity for CDK2 over CDK4 in contrast to those described in Ball et al..... who concluded that such p21 carboxy-terminal peptides 'do not have high specific activity for CDK2 inhibition, they are potent inhibitors of CDK4 activity'. Thus, Ball et al. do not focus upon this region for further development for preferential CDK2 inhibitors, indeed p21₁₄₁₋₁₆₀ was shown by these authors to be 40 times more active against cyclinD1/CDK4 than cyclinE/CDK2. Thus, further surprising advantages of the above peptides relate to their specificity, particularly for G1 control CDK's, such as CDK2/cyclinE and CDK2/cyclin A, as opposed to mitotic control enzymes including CDK's such as CDK1/cyclin B or A and protein kinase C α (PKC α). (page 20, lines 2-12)

Indeed, the peptides of the present invention have surprisingly been identified as having activity for CDK2 inhibition, a conclusion that would not be derivable from the teachings of Ball.

Accordingly, for each of the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the foregoing rejection.

Provisional Rejection Under Judicially Created Doctrine of Obviousness-type Double Patenting

Claims 49-56, 60-62, 65-66 and 70 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting "as being unpatentable over claims 16-22, 24-25, 58-64, 66, 70-78 and 80-83 of copending Application No. 09/726,470." Specifically, the Office Action sets forth that

[t]he '470 claims are drawn to many peptide sequences that comprise the instantly claimed peptide formula V of instant claims 49-56, 60-62, 65-66, and 70, i.e. the '470

claimed sequences comprise the -RX₄LX₅F--. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims are drawn to various sequence possibilities and variants of peptide formula V. Due to the indefiniteness of the instant claims regarding whether the claim language is opened or closed, the instant claims are interpreted as being open language for purposes of this rejection. Therefore, the '470 claims render obvious the instant claims wherein all the required limitations are claimed. In the case that the language is to be closed by amendment, it should be noted that the claims would still render obvious variants of the instantly claimed peptide formula V.

While in no way acquiescing to the Examiner's rejections under the judicially created doctrine of obviousness-type double patenting, Applicants note that prosecution of the present application and copending Application No. 09/726,470 may render such rejection moot. Accordingly, once the pending claims in the present application are formally indicated as otherwise allowable, and should such submission(s) be necessary, Applicants will submit a terminal disclaimer in compliance with C.F.R. §§ 1.321(b) and (c), as appropriate, which will obviate this rejection.

Withdrawal of Claims 57-59, 63-64 and 67-68

Applicants acknowledge the election of Group 142 (*i.e.*, claims 49-51 drawn to a peptide of formula V/SEQ ID NO:293) and the species of SEQ ID NO:295 as set forth in the Responses to Restriction Requirement of November 9, 2005 and November 29, 2005.

In the Office Action, claims 57-59, 63-64 and 67-68 were withdrawn from consideration on the ground that

[t]he examiner maintains the withdrawal insofar as the claims are drawn to subject matter that has not been found allowable. The elected species of the previous office action was indicated as allowable, however, the entire claim set is still open to many species that have not been deemed allowable. If Applicants wish to have those claims that read on the elected species allowed, then Applicants must limit those claims to that elected species. Since the claims remain open to other species, the examiner moved on to another species that was not found allowable. Therefore, the prosecution was limited to those claims that presently read on that additional single species. The withdrawn claims are to other species that have not been searched; therefore, the claims are withdrawn from consideration. Since the claims are not being currently prosecuted because those claims do not read on the instantly prosecuted species, and since they read on other species that have not been prosecuted, they must be withdrawn under species practice.

Applicants submit that in view of the foregoing amendments and arguments presented herein, the instantly prosecuted species is free of the prior art and in condition for allowance. Accordingly, Applicants respectfully request rejoinder of those allowable claims directed to the previously prosecuted species, *i.e.*, claims 57-59 and 63-64, and allowance of the present application.

SUMMARY

Applicants respectfully submit that the above-identified application is in condition for allowance. If a telephone conversation with Applicants' attorney would expedite prosecution of the above-identified application, the Examiner is urged to call Applicants' Attorney at (617) 227-7400.

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the present filing to Deposit Account No. 12-0080 under Order No. CCI-014CP2RCE, from which the undersigned is authorized to withdraw.

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Respectfully submitted,

By 

Cynthia L. Kanik, Ph.D.

Registration No.: 37,320

LAHIVE & COCKFIELD, LLP

One Post Office Square

Boston, Massachusetts 02109

(617) 227-7400

(617) 742-4214 (Fax)

Attorney/Agent For Applicants